

Naldini.ST25
SEQUENCE LISTING

<110> FONDAZIONE CENTRO SAN RAFFAELE DEL MONTE TABOR

<120> LENTIVIRAL VECTORS CARRYING SYNTHETIC BI-DIRECTIONAL PROMOTERS AND USES THEREOF

<130> 81240PCT

<140> PCT/IT2004/000227

<141> 2004-04-21

<160> 8

<170> PatentIn version 3.1

<210> 1

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> primer

<220>

<221> misc_feature

<222> (1)..(20)

<223> LV forward primer

<400> 1

tgaaagcgaa agggaaacca

20

<210> 2

<211> 15

Naldini.ST25

<212> DNA
<213> Artificial Sequence

<220>

<223> primer

<220>

<221> misc_feature

<222> (1)..(15)

<223> LV reverse primer

<400> 2
ccgtgcgcgc ttcag

15

<210> 3

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> probe

<220>

<221> misc_feature

<222> (1)..(18)

<223>

<220>

<221> misc_feature

<222> (1)..(18)

<223> LV probe

<400> 3
ctctctcgac gcaggact

18

<210> 4

Naldini.ST25

<211> 9613

<212> DNA

<213> Artificial Sequence

<220>

<223> plasmid

<220>

<221> misc_feature

<222> (1)..(9613)

<223> plasmid containing the lentiviral vector construct RRL-MA1-lucif/GFP

<400> 4

caggtggcac	ttttcgggga	aatgtgcgca	gaacccctat	ttgtttat	ttctaaatac	60
attcaaata	atgtccgctc	atgagacaat	aaccctgata	aatgcttcaa	taatattgaa	120
aaaggaagag	tatgagtatt	caacattcc	gtgtcgccct	tattccctt	tttgcggcat	180
tttgccttcc	tgttttgct	cacccagaaa	cgctggtgaa	agtaaaagat	gctgaagatc	240
agttgggtgc	acgagtgggt	tacatcgaac	tggatctcaa	cagcggtaag	atccttgaga	300
gttttcgccc	cgaagaacgt	tttccaatga	tgagcaactt	taaagttctg	ctatgtggcg	360
cggtattatc	ccgtattgac	gccgggcaag	agcaactcgg	tcgcccata	cactattctc	420
agaatgactt	ggttgagtac	tcaccagtca	cagaaaagca	tcttacggat	ggcatgacag	480
taagagaatt	atgcagtgct	gccataacca	tgagtgataa	cactgcggcc	aacttacttc	540
tgacaacgat	cggaggaccg	aaggagctaa	ccgcttttt	gcacaacatg	ggggatcatg	600
taactcgcct	tgatcggtgg	gaaccggagc	tgaatgaagc	cataccaaac	gacgagcgtg	660
acaccacgat	gcctgttagca	atggcaacaa	cgttgcgca	actattaact	ggcgaactac	720
ttactctagc	ttcccgccaa	caattaatag	actggatgga	ggcggataaa	gttgcaggac	780
cacttctgcg	ctcgccctt	ccggctggct	ggtttattgc	tgataaatct	ggagccggtg	840
agcgtgggtc	tcgcggat	attgcagcac	tggggccaga	tggtaagccc	tcccgtatcg	900
tagttatcta	cacgacgggg	agtcaggcaa	ctatggatga	acgaaataga	cagatcgctg	960
agataggtgc	ctcactgatt	aagcattggt	aactgtcaga	ccaagttac	tcatatatac	1020
tttagattga	tttaaaactt	cattttaat	ttaaaaggat	ctaggtgaag	atccttttg	1080
ataatctcat	gaccaaatac	ccttaacgtg	agtttcgtt	ccactgagcg	tcagaccccg	1140

Naldini.ST25

tagaaaaagat caaaggatct tcttgagatc cttttttctt gcgcgtaatc tgctgcttc	1200
aaacaaaaaa accaccgcta ccagcggtgg tttgttgc gatcaagag ctaccaactc	1260
ttttccgaa ggttaactggc ttcagcagag cgcatgatacc aaatactgtc cttctatgt	1320
agccgtatggt aggccaccac ttcaagaact ctgttagcacc gcctacatac ctcgctctgc	1380
taatccgtt accagtggct gctgcaggc ggcataatgc gtgttacc gggttggact	1440
caagacgata gttaccggat aaggcgcagc ggtcgggctg aacgggggt tcgtgcacac	1500
agcccagctt ggagcgaacg acctacaccg aactgagata cctacagcgt gagctatgag	1560
aaagcgccac gcttcccgaa gggagaaagg cggacaggta tccgtaagc ggcagggtcg	1620
gaacaggaga ggcacgagg gagcttccag gggaaacgc ctggtatctt tatagtccgt	1680
tcgggtttcg ccacctctga cttgagcgtc gatTTTGTG atgctcgtca gggggccgaa	1740
gcctatggaa aaacgcgcac aacgcggcct tttacgggtt cctggcctt tgctggcctt	1800
ttgctcacat gttttccct gcgttatccc ctgattctgt ggataaccgt attaccgcct	1860
ttgagtgagc tgataccgct cggcgcagcc gaacgaccga ggcagcgtc tcagtgagcg	1920
aggaagcggg agagcgccca atacgaaac cgcctctccc cgcgcgttgg ccgattcatt	1980
aatgcagctg gcacgacagg tttcccgact ggaaagcggg cagtgagcgc aacgcaatta	2040
atgtgagttt gctcactcat taggcacccc aggcttaca ctttatgctt ccggctcgta	2100
tgttgttgg aattgtgagc ggataacaat ttcacacagg aaacagctat gaccatgatt	2160
acgccaagcg cgcaattaac cctcactaaa ggaaacaaaa gctggagctg caagcttaat	2220
gtagtcttat gcaatactct ttagtcttgc caacatggta acgtgagtt agcaacatgc	2280
cttacaagga gagaaaaagc accgtcatg ccgattgggtt ggaaaggtt ggtacgatcg	2340
tgccttatta ggaaggcaac agacgggtct gacatggatt ggacgaaacca ctgaattgcc	2400
gcattgcaga gatattgtat ttaagtgcct agctcgatc aataacggg tctctctgtt	2460
tagaccagat ctgagcctgg gagctctctg gcttaacttagg gaaccactg cttaaagcctc	2520
aataaagctt gccttgagtg cttcaagttag tttgtgtcccg tctttgtgt gactctggta	2580
actagagatc cctcagaccc ttttagtcag tttggaaaat ctctagcgt ggcgcggaa	2640
cagggacactg aaagcgaaag ggaaaccaga gctctctga cgcatggactc ggcttgcgt	2700
agcgcgcacg gcaagaggcg agggggggcg actgggtgagt acgcaaaaaa ttttgactag	2760
cgaggactg aaggagagag atgggtgcga gacgtcgtt gatataagcggg ggagaattag	2820
atcgcgatgg gaaaaattt ggttaaggcc agggggaaag aaaaatata aattaaaaca	2880
tatagtatgg gcaagcaggag agctagaacg attcgatgtt aatccctggcc ttttagaaac	2940
atcagaaggc ttttagacaaa tactggaca gctacaacca tcccttcaga caggatcaga	3000
agaacttgcata tcattatata atacagtagc aaccctctat tttgtgcgtc aaaggataga	3060

Naldini.ST25

gataaaagac accaaggaag	cttagacaa gatagagga	gagcaaaaca aaagtaagac	3120
caccgcacag caagcggccg	ctgatcttca gacctggagg	aggagatatg agggacaatt	3180
ggagaagtga attatataaa	tataaagttag taaaaattga	accattagga gtagcaccca	3240
ccaaggcaaa gagaagagtg	gtgcagagag aaaaaagagc	agtggaaata ggagcttgc	3300
tccttgggtt cttggagca	gcaggaagca ctatggcgc	agcctcaatg acgctgacgg	3360
tacaggccag acaattattt	tctggatag tgcagcagca	gaacaatttgc tgaggcata	3420
ttgaggcgc aacgcattctg	ttgcaactca cagtctggg	catcaagcag ctccaggca	3480
gaatcctggc tgtggaaaga	tacctaaagg atcaacagct	cctggggatt tggggttgct	3540
ctggaaaact catttgcacc	actgctgtgc cttggatgc	tagtggagt aataaatctc	3600
tggaacagat ttggaatcac	acgacctgga tggagtggga	cagagaaatt aacaattaca	3660
caagcttaat acactcctta	attgaagaat cgcaaaacca	gcaagaaaag aatgaacaag	3720
aattatttgg aattagataaa	tggcaagtt tgtggatttgc	gtttaacata acaaatttggc	3780
tgtggatataaaaatttcc	ataatgatag taggaggctt	ggttaggtttt agaatagttt	3840
ttgctgtact ttctatagtg	aatagagtta ggcagggata	ttcaccatta tcgtttcaga	3900
cccacccccc aaccccgagg	ggacccgaca ggcccgaaagg	aatagaagaa gaaggtggag	3960
agagagacag agacagatcc	attcgattag tgaacggatc	tcgacggat cggttaactt	4020
ttaaaagaaa aggggggatt	gggggttaca gtgcagggga	aagaatagta gacataatag	4080
caacagacat acaaactaaa	gaattacaaa aacaaattac	aaaaattcaa aattttatcg	4140
atcacgagac tagcctcgag	agatctgatc ataatcagcc	ataccacatt tgttagggtt	4200
ttacttgctt taaaaaacct	cccacacctc cccctgaacc	tgaaacataa aatgaatgca	4260
attgttggtt ttaacttgg	tattgcagct tataatggtt	acaaataagg caatagcatc	4320
acaaatttca caaataaggc	attttttca ctgcattcta	gtttggttt gtccaaactc	4380
atcaatgtat cttatcatgt	ctggatctca aatccctcg	aagctgcgcc tgtcttaggt	4440
tggagtata catttttaccc	acttttaccc gtctttggat	taggcagtag ctctgacggc	4500
cctcctgtct taggtagtg	aaaaatgtca ctcttttacc	cgtcattggc tgtccagctt	4560
agctcgcagg ggaggtggtc	tggatcctct agaattacac	ggcgtatctt ccgccttct	4620
tggcctttat gaggatctct	ctgatttttc ttgcgtcgag	tttccggta agaccttcg	4680
gtacttcgtc cacaacaca	actcccccgc gcaactttt	cgcgttgcggtt acttgactgg	4740
ccacgtatc cacgtatctt	tttccgtca tcgtttcc	gtgctccaaa acaacaacgg	4800
cggcggaaag ttccaccggcg	tcatcgatcg	gaagacctgc gacacctgcg	4860
tggggtgttg gagcaagatg	gattccaatt cagcggagc	cacctgatag cctttgtact	4920

- Naldini.ST25

taatcagaga cttcaggcgg tcaacgatga agaagtgtc gtcttcgtcc cagtaagcta 4980
tgtctccaga atgttagccat ccatccttgt caatcaaggc gttggtcgct tccggattgt 5040
ttacataacc ggacataatc ataggacctc tcacacacag ttcgcctctt tgattaacgc 5100
ccagcgtttt cccggtatcc agatccacaa cttcgccttc aaaaaatgga acaactttac 5160
cgaccgcgcc cggttatca tccccctcggt gtgtaatcag aatagctgat gtagtctcag 5220
tgagccata tccttgccctg atacctggca gatggAACCT cttggcaacc gcttccccga 5280
cttccttaga gaggggagcg ccaccagaag caatttcgtg taaatttagat aaatcgatt 5340
tgtcaatcag agtgcttttgcgaagaagg agaatagggt tggcaccagc agcgcacttt 5400
gaatcttgta atcctgaagg ctcctcagaa acagctctc ttcaaattcta tacattaaga 5460
cgactcgaaa tccacatatac aaatatccga gtgttagtaaa cattccaaaa ccgtgatgga 5520
atggaacaac acttaaaatc gcagtatccg gaatgatttg attgccaaaa ataggatctc 5580
tggcatgcga gaatctcagc caggcagttc tatgaggcag agcgcacacct ttaggcagac 5640
cagtagatcc agaggagttc atgatcagtg caattgtctt gtccctatcg aaggactctg 5700
gcacaaaaatc gtattcatta aaaccgggag gtagatgaga tgtgacgaac gtgtacatcg 5760
actgaaatcc ctggtaatcc gttttagaat ccatgataat aatttttgg atgattggga 5820
gcttttttgcacgttcaaa attttttgcacccctttt ggaaacgaac accacggtag 5880
gctgcgaaat gcccatactg ttgagcaatt cacgttcatataatgtcg ttgcggcg 5940
caactgcaac tccgataaaat aacgcgcccacacccggcat aaagaattga agagagttt 6000
cactgcatac gacgattctg tgatttgcata tcagccata tcgttcata gcttctgcca 6060
accgaacgga catttcgaag tactcagcgt aagtgtatgtc cacctcgata tgtgcatctg 6120
taaaagcaat tggccagga accagggcgt atctcttcat agccttatgc agttgctctc 6180
cagcggttcc atcttccagc gtagatgatgcgcggcc tttctttatg tttttggcgt 6240
cttccatggat gatcccgcg gaggctggat cggccgggt gtcttctatg gaggtcaaaa 6300
cagcgtggat ggcgtctcca ggcgatctga cggccacta aacgagctct gcttatata 6360
gcctccacc gtacacgcct accctcgaga agcttgcata cgaattccca cgggggttggg 6420
gttgcgcctt ttccaaaggca gcccgggtt tgccgcaggaa cggccgtgtcttggcgt 6480
ttccggaaaa cgcagcggcg ccgaccctgg gtctcgacata ttcttcacgt ccgttcgcag 6540
cgtcacccgg atcttcgcgg ctacccttgt gggccccccg ggcgacgcctc ctgcgtccgc 6600
cctaagtccgg gaagggttcct tgcgggttcgc ggcgtgcggg acgtgacaaa cggaaagccgc 6660
acgtctcact agtaccctcg cagacggaca gcgcgcaggaa gcaatggcag cgcgcgcacc 6720
gcgatggcgtt gttggccaata gcggtgcgtc agcggggcgc gccgagagca gcgccggga 6780
agggggcggcgtt cgggaggcgg ggtgtggggc ggttagtgtgg gcccgttcc tgcccgccgc 6840

Naldini .ST25

gtgttccgca	ttctgcaagc	ctccggagcg	cacgtcggca	gtcggctccc	tcgttgaccg	6900
aatcaccgac	ctctctcccc	agggggatcc	accggtcgcc	accatggtga	gcaagggcga	6960
ggagctgttc	accggggtgtt	tgcccattcct	ggtcgagctg	gacggcgacg	taaacggcca	7020
caagttcagc	gtgtccggcg	agggcgaggg	cgatgccacc	tacggcaagc	tgaccctgaa	7080
gttcatctgc	accaccggca	agctgcccgt	gccctggccc	accctcgta	ccaccctgac	7140
ctacggcgtg	cagtgttca	gccgctaccc	cgaccacatg	aagcagcacg	acttcttcaa	7200
gtccgccatg	cccgaaaggct	acgtccagga	gcmcaccatc	ttcttcaagg	acgacggcaa	7260
ctacaagacc	cgcgccgagg	tgaagttcga	gggcgacacc	ctggtaacc	gcatcgagct	7320
gaagggcatc	gacttcaagg	aggacggcaa	catcctgggg	cacaagctgg	agtacaacta	7380
caacagccac	aacgtctata	tcatggccga	caagcagaag	aacggcatca	aggtgaactt	7440
caagatccgc	cacaacatcg	aggacggcag	cgtcagctc	gccgaccact	accagcagaa	7500
caccccccattc	ggcgacggcc	ccgtgctgct	gcccgacaac	cactacctga	gcacccagtc	7560
cgcctgagc	aaagacccca	acgagaagcg	cgatcacatg	gtcctgctgg	agttcgtgac	7620
cgcgcggcggg	atcactctcg	gcatggacga	gctgtacaag	taaagcggcc	gcgtcgacaa	7680
tcaacctctg	gattacaaaa	tttgcgttgg	attgactgg	attcttaact	atgttgctcc	7740
ttttacgcta	tgtggatacg	ctgttttat	gcctttgtat	catgctattt	cttccctgtat	7800
ggctttcatt	ttctcctcct	tgtataaattc	ctgggtgctg	tctctttatg	aggagttgtg	7860
gcccgttgtc	aggcaacgtg	gcgtgggtgt	cactgtgttt	gctgacgcaa	cccccaactgg	7920
ttggggcatt	gccaccaccc	gtcagctcct	ttccggact	ttcgctttcc	ccctccctat	7980
tgccacggcg	gaactcatcg	ccgcctgcct	tgcccgtgc	tggacagggg	ctcggctgtt	8040
gggcactgac	aattccgtgg	tgttgcggg	gaagctgacg	tcctttccat	ggctgctcgc	8100
ctgtgttgcc	acctggattc	tgcgcggac	gtccttctgc	tacgtccctt	cggccctcaa	8160
tccagcggac	cttccttccc	gcggcctgct	gccggctctg	cggcctcttc	cgcgtcttcg	8220
ccttcgcct	cagacgagtc	ggatccctt	ttggggccgc	tccccgcctg	gaattcggc	8280
tcgggtacctt	taagaccaat	gacttacaag	gcagctgttag	atcttagcca	ctttttaaaa	8340
aaaaaggggg	gactggaagg	gctaattcac	tcccaacgaa	gacaagatct	gtttttgtct	8400
tgtactgggt	ctctctgggt	agaccagatc	tgagcctggg	agctctctgg	ctaaacttaggg	8460
aacccactgc	ttaaggcctca	ataaaagctt	ccttgagtgc	ttcaagtagt	gtgtgcccgt	8520
ctgttgtgtg	actctggtaa	ctagagatcc	ctcagaccct	tttagtcagt	gtggaaaatc	8580
tcttagcagta	gtagttcatg	tcatcttatt	attcagtatt	tataacttgc	aaagaaaatga	8640
atatcagaga	gtgagaggaa	cttgcatttt	gcagcttata	atggttacaa	ataaaagcaat	8700

Naldini.ST25

agcatcacaa atttcacaaa taaagcattt ttttca	ctgc attctagttg tggttgtcc	8760
aaactcatca atgtatctta tcatgtctgg ctctagctat	cccgccccata actccgccc	8820
gttccgccc ttctccgccc catggctgac taatttttt	tattatgca gaggccgagg	8880
ccgcctcggc ctctgagcta ttccagaagt agtgaggagg	ctttttgga ggcctaggct	8940
tttgcgtcga gacgtaccca attcgcccta tagtgagtgc	tattacgcgc gctcactggc	9000
cgtcgttta caacgtcgtg actggaaaa ccctggcg	ttt acccaactta atcgccctgc	9060
agcacatccc ctttcgcca gctggcgtaa tagcgaagag	gccccgaccg atcgcccttc	9120
ccaaacatgg cgca	gctgaaatg gcgacg	9180
ccgcggcggt gtgggtgtta cgcgacgt gaccgctaca	cttgccagcg ccctagcgcc	9240
cgctccccc gcttcttcc cttccccc cgttccgttc	gcccacgttc gccggcttc cccgtcaagc	9300
tctaaatcgg gggctccctt tagggttccg atttagtgct	ttacggcacc tcgacccaa	9360
aaaacttgc tagggtgatg gttcacgtag tggccatcg	ccctgataga cggttttcg	9420
cccttgcg ttggagtcca ctttccaa tagtgactc	ttgttccaaa ctgaaacaac	9480
actcaaccct atctcggtct attctttga ttataaggg	atttgcga ttgcggccta	9540
ttggtaaaa aatgagctga tttaacaaa attaacgcg	aatttaaca aaatattaac	9600
gtttacaatt tcc		9613

<210> 5

<211> 9380

<212> DNA

<213> Artificial Sequence

<220>

<223> plasmid

<220>

<221> misc_feature

<222> (1)..(9380)

<223>

<220>

<221> misc_feature

<222> (1)..(9380)

<223> plasmid containing the lentiviral vector construct CCL-MA1-GFP/de
ltaLNGFR

<400> 5	
caggtggcac ttttcgggga aatgtgcgcg gaaccctat ttgtttat ttctaaatac	60
attcaaatat gtatccgctc atgagacaat aaccctgata aatgcttcaa taatattgaa	120
aaaggaagag tatgagtatt caacattcc gtgtcgccct tattccctt tttgcggcat	180
tttgccttcc tgttttgct caccagaaa cgctggtaaa agtaaaagat gctgaagatc	240
agttgggtgc acgagtgggt tacatcgaac tggatctcaa cagcggtaag atccttgaga	300
gttttcgccc cgaagaacgt tttccaatga tgagcactt taaagttctg ctatgtggcg	360
cggtattatc ccgtattgac gccgggcaag agcaactcgg tcgcccata cactattctc	420
agaatgactt ggtttagtac tcaccagtca cagaaaagca tcttacggat ggcatgacag	480
taagagaatt atgcagtgct gccataacca tgagtataa cactgcggcc aacttacttc	540
tgacaacgt cggaggaccg aaggagctaa ccgcttttt gcacaacatg ggggatcatg	600
taactcgccct tgatcggtgg gaaccggagc tgaatgaagc cataccaaac gacgagcgtg	660
acaccacgt gcctgttagca atggcaacaa cgttgcgcaa actattaact ggcgaactac	720
ttactctagc ttcccgccaa caattaatag actggatgga ggcggataaa gttcaggac	780
cacttctgcg ctcggccctt ccggctggct ggttattgc tgataaatct ggagccggtg	840
agcgtgggtc tcgcgttac attgcagcac tggggccaga tggtaagccc tcccgtatcg	900
tagttatcta cacgacgggg agtcaggcaa ctatggatga acgaaataga cagatcgctg	960
agataggtgc ctcactgatt aagcatttgt aactgtcaga ccaagtttac tcatatatac	1020
tttagattga tttaaaactt catttttaat ttaaaaggat ctaggtgaag atccttttg	1080
ataatctcat gacaaaatc ccttaacgtg agtttcgtt ccactgagcg tcagaccccg	1140
tagaaaagat caaaggatct tcttgagatc cttttttct gcgcgtaatc tgctgcttg	1200
aaacaaaaaa accaccgcta ccagcggtgg tttgtttgcc ggatcaagag ctaccaactc	1260
ttttccgaa ggtaactggc ttcagcagag cgccagatacc aaatactgtc cttctagtgt	1320
agccgtagtt aggccaccac ttcaagaact ctgtacgacc gcctacatac ctcgctctgc	1380
taatcctgtt accagtggct gctgccagt gcgataagtc gtgtcttacc gggttggact	1440
caagacgata gttaccggat aaggcgcagc ggtcgggctg aacggggggt tcgtgcacac	1500
agcccagctt ggagcgaacg acctacaccg aactgagata cctacagcgt gagctatgag	1560
aaagcgccac gcttccgaa gggagaaagg cggacaggta tccggtaagc ggcagggtcg	1620
gaacaggaga gcgcacgagg gagcttccag gggaaacgc ctggtatctt tatagtcctg	1680
tcgggttcg ccacctctga cttgagcgtc gatttttgtg atgctcgtca gggggccgga	1740

Naldini.ST25

gcctatggaa aaacgccagc aacgcggcct tttacggtt cctggcctt tgctggcctt	1800
ttgctcacat gttttccct gcgttatccc ctgattctgt ggataaccgt attaccgcct	1860
tttagtgagc tgataccgct cgccgcagcc gaacgaccga gcgcagcgag tcagtgagcg	1920
aggaagcgg aagcgcccc atacgcaa ac cgcctctccc cgccgttgg ccgattcatt	1980
aatgcagctg gcacgacagg tttccgact ggaaagcggg cagtgagcgc aacgcaatta	2040
atgtgagtt gctcaactcat taggcacccc aggctttaca ctttatgctt ccggctcgta	2100
tgttgtgtgg aattgtgagc ggataacaat ttcacacagg aaacagctat gaccatgatt	2160
acgccaagcg cgcaattaac cctcaactaaa gggacaaa gctggagctg caagcttggc	2220
cattgcatac gttgtatcca tatcataata tgtacatttatttgcatac tttatgctt ccggctcgta	2280
taccgccccatg ttgacattga ttattgacta gttattaata gtaatcaatt acggggtcatt	2340
tagttcatag cccatataatg gagttccgctt tacataact tacggtaat ggccgcctg	2400
gctgaccgccc caacgacccc cgcccaatttga cgtcaataat gacgtatgtt cccatagtaa	2460
cgccaatagg gactttccat tgacgtcaat gggtgagta tttacggtaa actgcccact	2520
tggcagtaca tcaagtgtat catatgccaat gtacgcccc tattgacgtc aatgacggta	2580
aatggccgcgcttggcattat gcccagtaca tgacctttagt ggactttctt acttggcagt	2640
acatctacgt attagtcattc gctattacca tggtgatgcg gttttggcag tacatcaatg	2700
ggcgtggata gcggtttgc tcacggggat ttccaagtctt ccacccattt gacgtcaatg	2760
ggagtttggat ttggcaccaa aatcaacggg actttccaaa atgtcgtaac aactccgccc	2820
cattgacgca aatgggcggt aggctgtac ggtggaggt ctatataagc agagctcggtt	2880
tagtgaaccg gggctctctt ggttagacca gatctgagcc tggagctctt ctggcttaact	2940
agggaaacca ctgcttaagc ctcaataaaat cttgccttga gtgcttcaag tagtgtgtgc	3000
ccgtctgttg tggactctg gtaactagag atccctcaga cccttttagt cagtgtggaa	3060
aatctctacgt agtggcgccc gaacaggac ctgaaagcga aaggaaacc agagctctt	3120
cgacgcagga ctcggcttgc tgaagcgcgc acggcaagag gcggggcg ggcactgg	3180
agtacgccaat aattttgc tagcggaggc tagaaggaga gagatgggtg cgagagcg	3240
agtattaaac gggggagaat tagatcgcga tggaaaaaa ttcggtaag gccaggggaa	3300
aagaaaaat ataaattaaa acatataatg tggcaagca gggagctaga acgattcgca	3360
gttaatcctg gcctgtttaga aacatcagaa ggctgttagac aaatactggg acagctacaa	3420
ccatcccttc agacaggatc agaagaactt agatcattat ataaatacgt agcaaccctc	3480
tattgtgtgc atcaaaggat agagataaaa gacaccaagg aagctttaga caagatagag	3540
gaagagcaaa acaaaagtaa gaccacccgca cagcaagcgg ccgctgtatct tcagacccctgg	3600

Naldini.ST25

Naldini .ST25

cgtgctgctt	catgtggtcg	ggtagcgac	tgaagcactg	cacgccgtag	gtcagggtgg	5580
tcacgagggt	ggccagggc	acggcagct	tgccgggtgg	gcagatgaac	ttcagggtca	5640
gcttgcgt	ggtggcatcg	ccctcgccct	cgccggacac	gctgaacttg	tggccgttta	5700
cgtcggcgtc	cagctcgacc	aggatggca	ccaccccggt	gaacagctcc	tcgcccgtgc	5760
tcaccatgg	gaattccgcg	gaggctggat	cggtcccggt	gtcttctatg	gaggtcaaaa	5820
cagcgtggat	ggcgtctcca	ggcgtatcg	cggttcacta	aacagactct	gcttatata	5880
gcctccacc	gtacacgcct	accctcgaga	agcttgat	cgaaattccca	cggggttggg	5940
gttgcgcctt	ttccaaggca	gccctgggtt	tgcgcaaggga	cgcggctgct	ctgggcgtgg	6000
ttccggaa	cgcagcggcg	ccgaccctgg	gtctcgacaca	ttcttcacgt	ccgttcgcag	6060
cgtcaccgg	atcttcgccc	ctacccttgt	gggccccccg	gacgtacgttc	ctgctccgccc	6120
cctaagtccg	gaaggttcct	tgcggttcgc	ggcgtgccgg	acgtacaaa	cggaagccgc	6180
acgtctca	agtaccctcg	cagacggaca	gcccaggga	gcaatggcag	cgcggcggacc	6240
gcgtatggct	gtggccaata	gcggctgctc	agcggggcgc	gccgagagca	gcggccggga	6300
agggcgggtg	cgggaggcg	gtgtggggc	ggtgtgtgg	gccctgttcc	tgcccgccgc	6360
gtgttccgca	ttctgcaagc	ctccggagcg	cacgtccgca	gtcggctccc	tcgttgaccg	6420
aatcaccgac	ctctctcccc	aggggatcc	cccggctgc	aggaattcgg	gccgcggcca	6480
gctccggcg	gcaggggggg	cgctggagcg	cagcgcagcg	cagccccatc	agtccgc	6540
gcggaccgag	ctggaagtcg	agcgctgccg	cgggaggcg	gcgtatgggg	caggtgccac	6600
cggccgcgc	atggacgggc	cgcgcctgct	gctgttgctg	cttctggggg	tgtcccttgg	6660
aggtgccaag	gaggcatgcc	ccacaggcct	gtacacacac	agcggtgagt	gctgcaaagc	6720
ctgcaacctg	ggcgagggtg	tggccagcc	ttgtggagcc	aaccagaccg	tgtgtgagcc	6780
ctgcctggac	agcgtacgt	tctccgacgt	ggtgagcg	accgagccgt	gcaagccgt	6840
caccgagtgc	gtggggctcc	agagcatgtc	ggcgcgtgc	gtggaggccg	acgacgcccgt	6900
gtgccctgc	gcctacggct	actaccagga	tgagacgact	gggcgtgcg	aggcgtgccg	6960
cgtgtcgag	gcgggctcg	gcctcggtt	ctcctgccc	gacaagcaga	acaccgtgt	7020
cgaggagtgc	cccgacggca	cgtattccga	cgaggccaa	cacgtggacc	cgtcctgccc	7080
ctgcaccgtg	tgcgaggaca	ccgagcgcca	gctccgcgag	tgcacacgct	ggccgcacgc	7140
cgagtgcgag	gagatccctg	gccgttggat	tacacggtcc	acaccccccag	agggctcgga	7200
cagcacagcc	cccagcaccc	aggagcctga	ggcacctcca	gaacaagacc	tcatagccag	7260
cacggtggca	ggtgtggta	ccacagtgtat	gggcagctcc	cagccgtgg	tgacccgagg	7320
caccaccgac	aacctcatcc	ctgtctattg	ctccatcctg	gctgctgtgg	ttgtgggcct	7380

Naldini.ST25

tgtggcctac atagcttca agaggtggaa cagggggatc ctctagagtc gagtctagag	7440
tcgacaatca acctctggat tacaaaattt gtgaaagatt gactggatt cttaactatg	7500
ttgctccttt tacgctatgt ggatacgctg cttaatgcc tttgtatcat gctattgctt	7560
cccgatggc tttcattttc tcctccttgt ataaatccctg gttgctgtct ctatgagg	7620
agttgtggcc cggttcagg caacgtggcg tgggtgcac tgggtttgct gacgcaaccc	7680
ccactggttg gggcattgcc accacctgtc agctccttc cgggactttc gcttcccc	7740
tccctattgc cacggcggaa ctcatcgccg cctgccttgc ccgtgctgg acaggggctc	7800
ggctgttggg cactgacaat tccgtggtgt tgtcgggaa gctgacgtcc tttccatggc	7860
tgctcgctg tggattctgc gcgggacgtc cttctgctac gtcccttcgg	7920
ccctcaatcc agcggacctt cttcccgcg gcctgctgcc ggctctgcgg ccttccgc	7980
gtcttcgcct tcgcccctcag acgagtcgga tctcccttg ggccgcctcc ccgcctggaa	8040
ttcgagctcg gtaccttaa gaccaatgac ttacaaggca gctgtagatc ttagccactt	8100
tttaaaagaa aaggggggac tggaaaggct aattcactcc caacgaagac aagatctgct	8160
ttttgcttgt actgggtctc tctggtaga ccagatctga gcctgggagc tctctggcta	8220
actaggaaac ccactgctta agcctaata aagctgcct tgagtgcctc aagtagtgtg	8280
tgcccgctg ttgtgtgact ctggtaacta gagatccctc agacccttt agtcagtgtg	8340
gaaaatctct agcagtagta gttcatgtca tcttattatt cagtattt aacttgcaaa	8400
gaaatgaata tcagagagtg agaggaactt gtttattgca gcttataatg gttacaata	8460
aagcaatagc atcacaaatt tcacaaataa agcattttt tcactgcatt ctatgtgg	8520
tttgcctaaa ctcatcaatg tatcttatca tgtctggctc tagctatccc gcccctaact	8580
ccgcccagtt ccgcccattc tccgccccat ggctgactaa tttttttt ttagcagag	8640
gccgaggccg cctcggcctc tgagctattc cagaagtagt gaggaggctt tttggaggc	8700
ctaggcttt gcgtcgagac gtaccaatt cgcctatag tgagtctat tacgcgcgt	8760
cactggccgt cgtttacaa cgctgtact gggaaaaccc tggcgttacc caacttaatc	8820
gccttgcagc acatccccct ttgcctcagct ggctgtatag cgaagaggcc cgcaccgatc	8880
gcccttccca acagttgcgc agcctgaatg gcgaatggcg cgacgcgc cttgcggcg	8940
cattaagcgc ggcgggtgtg gtggttacgc gcagcgtgac cgctacactt gccagcgc	9000
tagcgtccgc tccttcgct ttcttccctt cctttctcgc cacgttcgcc ggcttcccc	9060
gtcaagctct aaatcgaaaa ctccttttag gggtccgatt tagtgcctta cggcacctcg	9120
accccaaaaaa acttgattag ggtgtatggtt cacgtatgg gccatgcgc tgatagacgg	9180
ttttcgccc ttgtacgtt ggtccacgt tctttatag tggactcttgc ttccaaactg	9240
gaacaacact caaccctatc tcggcttattt ctgttgcattt ataaggatt ttggccgattt	9300

Naldini.ST25

cggcctattg gttaaaaaat gagctgattt aacaaaaatt taacgcgaat tttaacaaaa 9360
tattaacgtt tacaatttcc 9380

<210> 6
<211> 9718
<212> DNA
<213> Artificial Sequence

<220>
<223> plasmid
<220>
<221> misc_feature
<222> (1)..(9718)
<223>

<220>
<221> misc_feature
<222> (1)..(9718)
<223> plasmid containing the lentiviral vector construct RRL-MA2-lucif/
GFP

<400> 6
caggtggcac ttttcgggga aatgtgcgcg gaaccctat ttgtttatcc ttctaaatac 60
attcaaataat gtatccgctc atgagacaat aaccctgata aatgcttcaa taatattgaa 120
aaaggaagag tatgagtatt caacattcc gtgtcgccct tattccctt tttgcggcat 180
tttgccttcc tgaaaaatcc caccagaaaa cgctggtaaa agtaaaagat gctgaagatc 240
agttgggtgc acgagtgggt tacatcgaac tggatctcaa cagcggtaag atccttgaga 300
gttttcgccc cgaagaacgt tttccatga tgagcacttt taaagttctg ctatgtggcg 360
cggtattatc ccgtattgac gccgggcaag agcaactcgg tcgccccata cactattctc 420
agaatgactt ggttggatc tcaccagtca cagaaaagca tcttacggat ggcatgacag 480
taagagaatt atgcagtgct gccataacca tgagtgataa cactgcggcc aacttacttc 540
tgacaacat cggaggaccg aaggagctaa ccgcgtttt gcacaacatg ggggatcatg 600
taactcgccct tgatcggtgg gaaccggagc tgaatgaagc cataccaaac gacgagcgtg 660

Naldini.ST25

acaccacgat gcctgttagca atggcaacaa cgttgcgcaa actattaact ggcgaactac	720
ttactctagc ttcccgccaa caattaatag actggatgga ggcggataaa gttgcaggac	780
cacttctgcg ctcggccctt ccggctggct ggtttattgc tgataaatct ggagccggtg	840
agcgtgggtc tcgcggtatac attgcagcac tggggccaga tggtaagccc tcccgtatcg	900
tagttatcta cacgacgggg agtcaggcaa ctatggatga acgaaataga cagatcgctg	960
agataggtgc ctcactgatt aagcatttgt aactgtcaga ccaagtttac tcataatatac	1020
tttagattga tttaaaactt cattttaat ttaaaaggat ctaggtgaag atcccttttg	1080
ataatctcat gacaaaatc ccttaacgtg agtttcgtt ccactgagcg tcagaccccg	1140
tagaaaagat caaaggatct tcttgagatc cttttttct gcgcgtaatc tgctgcttgc	1200
aaacaaaaaa accaccgcta ccagcggtgg tttgttgcc ggatcaagag ctaccaactc	1260
ttttccgaa ggtaactggc ttcagcagag cgccagatacc aaatactgtc cttctagtgt	1320
agccgtagtt aggccaccac ttcaagaact ctgttagcacc gcctacatac ctcgctctgc	1380
taatccctgtt accagtggct gctgccagtgcgataagtgc gtgtcttacc gggttggact	1440
caagacgata gttaccggat aaggcgcagc ggtcgggctg aacgggggggt tcgtgcacac	1500
agcccagctt ggagcgaacg acctacaccg aactgagata cctacagcgt gagctatgag	1560
aaagcgccac gcttcccgaa gggagaaagg cggacaggta tccggttaagc ggcagggtcg	1620
gaacaggaga ggcacgagg gagcttccag gggaaacgc ctggtatctt tatagtcctg	1680
tcgggtttcg ccacctctga cttgagcgtc gatttttgtg atgctcgtca gggggggcgg	1740
gcctatggaa aaacgcccagc aacgcggcct ttttacggtt cctggcctt tgctggcctt	1800
ttgctcacat gtttttcct gcgttatccc ctgattctgt ggataaccgt attaccgcct	1860
ttgagtgagc tgataccgct cgccgcagcc gaacgaccga ggcagcgtc tcagtgagcg	1920
aggaagcggaa agagcgcaca atacgcaaacc cgcctctccc cgcgcgttgg ccgattcatt	1980
aatgcagctg gcacgacagg tttccgact ggaaagcggg cagtgagcgc aacgcaatta	2040
atgtgagtt gctcactcat taggcacccccc aggctttaca ctttatgctt ccggctcgta	2100
tgttgtgtgg aattgtgagc ggataacaat ttcacacagg aaacagctat gaccatgatt	2160
acgccaagcg cgcaattaac cctcactaaa gggacaaa gctggagctg caagcttaat	2220
gtagtcttat gcaatactct tgtagtcttg caacatggta acgatgagtt agcaacatgc	2280
cttacaagga gagaaaaagc accgtgcattt ccgattgggtg gaagtaaggt ggtacgatcg	2340
tgccttatta ggaaggcaac agacgggtct gacatggatt ggacgaacca ctgaattgcc	2400
gcattgcaga gatattgtat ttaagtgcct agctcgatac aataaacggg tctctctgg	2460
tagaccagat ctgagcctgg gagctctctg gctaactagg gaacccactg cttaaagcctc	2520

Naldini.ST25

aataaagctt	gccttgagtgc	tttcaagtag	tgtgtcccc	tctgttgtgt	gactctggta	2580
actagagatc	cctcagaccc	ttttagtcag	tgtggaaaat	ctctagcagt	ggcgccccaa	2640
cagggacctg	aaagcgaaag	ggaaaccaga	gctctctcga	cgcaggactc	ggcttgctga	2700
agcgccacg	gcaagaggcg	aggggccccg	actggtgagt	acgccaaaaa	ttttgactag	2760
cggaggctag	aaggagagag	atgggtgcga	gagcgtcagt	atataagcggg	ggagaattag	2820
atcgcgatgg	aaaaaaattc	ggttaaggcc	agggggaaag	aaaaaatata	aattaaaaca	2880
tatagtatgg	gcaagcaggg	agctagaacg	attcgcagtt	aatcctggcc	tgtttagaaac	2940
atcagaaggc	tgttagacaaa	tactggaca	gctacaacca	tcccttcaga	caggatcaga	3000
agaacttaga	tcattatata	atacagtagc	aaccctctat	tgtgtgcac	aaaggataga	3060
gataaaagac	accaaggaag	ctttagacaa	gatagaggaa	gagcaaaaca	aaagtaagac	3120
caccgcacag	caagcggccg	ctgatctca	gacctggagg	aggagatatg	agggacaatt	3180
ggagaagtga	attatataaa	tataaagtag	taaaaattga	accatttagga	gtagcaccca	3240
ccaaggcaaa	gagaagagtgc	gtgcagagag	aaaaaaagagc	agtggaaata	ggagctttgt	3300
tccttgggtt	cttgggagca	gcaggaagca	ctatggcgc	agcctcaatg	acgctgacgg	3360
tacaggccag	acaattattt	tctggatag	tgcagcagca	gaacaattt	ctgagggcta	3420
ttgaggcgca	acagcatctg	ttgcaactca	cagtctgggg	catcaagcag	ctccaggcaa	3480
gaatcctggc	tgtggaaaga	tacctaaagg	atcaacagct	cctggggatt	tggggttgct	3540
ctggaaaact	cattgcacc	actgctgtgc	cttggaatgc	tagtggagt	aataaatctc	3600
tggaacagat	tggaatcaca	cgacctggat	ggagtggac	agagaaatta	acaattacac	3660
aagcttaata	cactcctaa	ttgaagaatc	gcaaaaccag	caagaaaaga	atgaacaaga	3720
attattggaa	ttagataaat	ggcaagttt	gtgaaattgg	tttaacataa	caaattggct	3780
gtgttatata	aaattattca	taatgatagt	aggaggctt	gtaggtttaa	gaatagttt	3840
tgctgtactt	tctatagtga	atagagttag	gcagggatat	tcaccattat	cgtttcagac	3900
ccacctccca	accccgaggg	gacccgacag	gcccgaaagga	atagaagaag	aagggtggaga	3960
gagagacaga	gacagatcca	ttcgattagt	gaacggatct	cgacggatc	ggtaacttt	4020
taaaagaaaa	ggggggattt	gggggtacag	tgcaggggaa	agaatagtag	acataatagc	4080
aacagacata	caaactaaag	aattacaaaa	acaaattaca	aaaattcaaa	attttatcga	4140
tcacgagact	agcctcgaga	gatctgatca	taatcagcca	taccacattt	gtagaggttt	4200
tacttgcttt	aaaaaacctc	ccacaccc	ccctgaacct	gaaacataaa	atgaatgcaa	4260
ttgttgtgt	taacttgttt	attgcagctt	ataatggta	caaataaggc	aatagcatca	4320
caaatttcac	aaataaggca	ttttttcac	tgcattctag	ttttggttt	tccaaactca	4380
tcaatgtatc	ttatcatgtc	tggatctcaa	atccctcgga	agctgcgcct	gtcttaggtt	4440

Naldini.ST25

ggagtgatac	attttatca	cttttacccg	tctttggatt	aggcagtagc	tctgacggcc	4500
ctcctgtctt	aggtagtga	aaaatgtcac	tctcttaccc	gtcattggct	gtccagctta	4560
gctcgcaagg	gaggtggtct	ggatccctgg	atatcaagaa	ttcgtcctcg	agctcagatc	4620
ctctagaatt	acacggcgat	cttccgccc	ttcttggcct	ttatgaggat	ctctctgatt	4680
tttcttgcgt	cgagtttcc	ggtaagacct	ttcggtaactt	cgtccacaaa	cacaactcct	4740
ccgcgcaact	tttgcggt	tgttacttga	ctggccacgt	aatccacgt	ctcttttcc	4800
gtcatcgtct	ttccgtgctc	caaaacaaca	acggcggcgg	gaagttcacc	ggcgtcatcg	4860
tcgggaagac	ctgcgacacc	tgcgtcgaag	atgttggggt	gttggagcaa	gatggattcc	4920
aattcagcg	gagccacctg	atagccttt	tacttaatca	gagacttcag	gcggtaacg	4980
atgaagaagt	gttcgtcttc	gtcccagtaa	gctatgtctc	cagaatgtag	ccatccatcc	5040
ttgtcaatca	aggcgttggt	cgcttccgga	ttgtttacat	aaccggacat	aatcatagga	5100
cctctcacac	acagttcgcc	tctttgatta	acgcccagcg	ttttccgggt	atccagatcc	5160
acaacccctcg	cttcaaaaaaa	tggaacaact	ttaccgaccg	cgcccggtt	atcatcccc	5220
tcgggtgtaa	tcagaatagc	tgatgtagtc	tcagtgagcc	catatccttg	cctgataacct	5280
ggcagatgga	acctttggc	aaccgcttcc	ccgacttcct	tagagagggg	agcgcacca	5340
gaagcaattt	cgtgtaaatt	agataaatcg	tatttgc当地	tcagagtgc当地	tttggc当地	5400
aaggagaata	gggttggcac	cagcagcgca	cttgaatct	tgtaatcctg	aaggctcctc	5460
agaaacagct	cttccaaa	tctatacatt	aagacgactc	gaaatccaca	tatcaaataat	5520
ccgagatgtag	taaacattcc	aaaaccgtga	tggaatggaa	caacacttaa	aatcgcagta	5580
tccggaatga	tttgattgcc	aaaaatagga	tctctggcat	gcgagaatct	cacgcaggca	5640
gttctatgag	gcagagcgac	acctttaggc	agaccagtag	atccagagga	gttcatgatc	5700
agtcaattt	tcttgc当地	atcgaaggac	tctggcacaa	aatcgtattc	attaaaaccg	5760
ggaggttagat	gagatgtgac	gaacgtgtac	atcgactgaa	atccctggta	atccgttta	5820
gaatccatga	taataat	ttggatgatt	gggagctttt	tttgc当地	caaaat	5880
tgcaacccct	tttggaaac	gaacaccacg	gtaggctg	aaatgccc当地	actgttgc当地	5940
aattcacgtt	cattataat	gtcgtc当地	ggc当地	caactccgat	aaataacg	6000
cccaacaccg	gcataaaagaa	ttgaagagag	tttcaactgc	atacgacgt	tctgtgattt	6060
gtattcagcc	catatcg	tctacttct	gccaaccgaa	cg	gaagtactca	6120
gcgttaagtga	tgtccaccc	gatatgtgca	tctgtaaaag	caattgttcc	aggaaccagg	6180
gcgtatctct	tcatagc	tttgc当地	tctccagcgg	ttccatctc	cagcggatag	6240
aatggcgccg	ggc当地	tatgttttgc当地	gcgttcca	tggtaattc	cgatcccc	6300

Naldini.ST25

ggggagagag gtcggtgatt cggtcaacga gggagccgac tgccgacgtg cgctccggag	6360
gcttgcagaa tgcggaacac cgcgccggca ggaacagggc ccacactacc gccccacacc	6420
ccgcctcccg caccgccccct tcccgccgc tgctctcgcc gcgcggccgt gagcagccgc	6480
tattggccac agcccatcgc ggtcggcgcg ctgccattgc tccctggcgc tgtccgtctg	6540
cgagggtaact agtgagacgt gcggcttccg tttgtcacgt ccggcacgccc gcgaaccgca	6600
aggaaccttc ccgacttagg ggcggagcag gaagcgtcgc cggggggccc acaaggtag	6660
cggcgaagat ccgggtgacg ctgcaacgg acgtgaagaa tgtgcgagac ccagggtcgg	6720
cggcgtcgc tttcccgaa ccacgcccag agcagccgc tccctgcgc aaccaggc	6780
tgccttgaa aaggcgcaac cccaaaccccg tggaaattcg atatcaagct tgcctatgtt	6840
cttttggaaat ctatccaagt cttatgtaaa tgcttatgtt aaccataata taaaagagt	6900
ctgattttt gagtaaactt gcaacagtcc taacattttt ctctcgtgtg tttgtgtctg	6960
ttcgccatcc cgtctccgct cgtcaattat ctttcaactt tcagagggtc ccccccgcaga	7020
tcccggtcac cctcaggtcg ggtcgacaac catggtgagc aagggcgagg agctgttac	7080
cgggggtggtg cccatcctgg tcgagctgga cggcgacgta aacggccaca agttcagcgt	7140
gtccggcgag ggcgagggcg atgcccaccta cggcaagctg accctgaagt tcatctgcac	7200
caccggcaag ctgcccgtgc cctggccac cctcgtgacc accctgaccc acggcgtgca	7260
gtgcttcagc cgctaccccg accacatgaa gcagcacgac ttcttcaagt ccgcctatgcc	7320
cgaaggctac gtccaggagc gcaccatctt cttcaaggac gacggcaact acaagacccg	7380
cggccaggtg aagttcgagg ggcacacccct ggtgaaccgc atcgagctga agggcatcga	7440
cttcaaggag gacggcaaca tcctggggca caagctggag tacaactaca acagccacaa	7500
cgtctatatc atggccgaca agcagaagaa cggcatcaag gtgaacttca agatccgcca	7560
caacatcgag gacggcagcg tgcagctcgc cgaccactac cagcagaaca ccccccattcg	7620
cggccccc gtgctgctgc cgcacaacca ctacctgagc acccagtccg ccctgagcaa	7680
agaccccaac gagaagcgcg atcacatggt cctgctggag ttcgtgaccg cggccggat	7740
cactctcggc atggacgagc tgtacaagta aagcggccctc gacaatcaac ctctggatta	7800
caaaatttgt gaaagattga ctggatttct taactatgtt gctcctttta cgctatgtgg	7860
atacgctgct ttaatgcctt tgtatcatgc tattgcttcc cgtatggctt tcattttctc	7920
ctccttgtat aaatcctggt tgctgtctt ttatgaggag ttgtggcccg ttgtcaggca	7980
acgtggcgtg gtgtgcactg tgttgctga cgcacccccc actgggtgg gcattgccac	8040
cacctgtcag ctcccttccg ggactttcgc tttccccctc cctattgcca cggcggaaact	8100
catcgccgccc tgccctgccc gctgctggac aggggctcgg ctgttggca ctgacaattc	8160
cgtggtgttgc tcggggaaagc tgacgtcctt tccatggctg ctgcgtgtg ttgccacccgt	8220

Naldini.ST25

gattctgcgc gggacgtcct tctgctacgt cccttcggcc ctcaatccag cgAACCTTCC 8280
ttcccgccgc ctgctgccgg ctctgcggcc tcttccgcgt cttgccttc gccctcagac 8340
gagtcggatc tcccttggg ccgcctcccc gcctggaatt cgagctcggt accttaaga 8400
ccaatgactt acaaggcagc tgttagatctt agccacttt taaaagaaaa ggggggactg 8460
gaagggctaa ttcaactccca acgaagacaa gatctgctt ttgcttgtac tgggtctctc 8520
tggtagacc agatctgagc ctgggagctc tctggctaac taggaaaccc actgcttaag 8580
cctcaataaa gcttccttg agtgcctcaa gtagtgttg cccgtctgtt gtgtgactct 8640
ggtaactaga gatccctcag acccttttag tcagtgtgga aaatctctag cagtagtagt 8700
tcatgtcatc ttattattca gtatttataa cttgcaaaaga aatgaatatc agagagttag 8760
aggaacttgt ttattgcagc ttataatggt tacaataaaa gcaatagcat cacaaatttc 8820
acaaataaaag cattttttc actgcattct agttgtgggt tgcctaaact catcaatgt 8880
tcttatcatg tctggctcta gctatccgc ccctaactcc gcccagttcc gcccattctc 8940
cgccccatgg ctgactaatt ttttttattt atgcagaggc cgaggccgcc tcggcctctg 9000
agctattcca gaagtagtga ggaggctttt ttggaggcct aggctttgc gtcgagacgt 9060
acccaattcg ccctatacg agtcgtatta cgcgcgtca ctggccgtcg ttttacaacg 9120
tcgtgactgg gaaaaccctg gcgttaccca acttaatcgc cttgcagcac atccccctt 9180
cgccagctgg cgtaatagcg aagaggcccg caccgatcgc cttcccaac agttgcgcag 9240
cctgaatggc gaatggcgcg acgcgcctg tagcggcgca ttaagcgccg cgggtgtgg 9300
ggttacgcgc agcgtgaccg ctacacttgc cagcgcccta gcgcggctc cttcgcttt 9360
cttcccttcc tttctcgcca cgttcgccgg ctttccccgt caagctctaa atcgggggct 9420
ccctttaggg ttccgattta gtgcttacg gcacctcgac cccaaaaaaac ttgatttaggg 9480
tgatggttca cgtagtgccc catgcgcctg atagacggtt tttgcgcctt tgacgttgaa 9540
gtccacgttc tttaatagtg gactcttgc ccaaactgga acaacactca accctatctc 9600
ggtctattct tttgatttat aagggatttt gccgatttcg gcctattgg taaaaaatgaa 9660
gctgatttaa caaaaattta acgcaattt taacaaaata ttaacgttta caatttcc 9718

<210> 7

<211> 9490

<212> DNA

<213> Artificial Sequence

<220>

Naldini.ST25

<223> plasmid

<220>

<221> misc_feature

<222> (1)..(9490)

<223>

<220>

<221> misc_feature

<222> (1)..(9490)

<223> plasmid containing the lentiviral vector construct CCL-MA3-GFP/de
ltaLNGFR

<400> 7
caggtggcac ttttcgggga aatgtgcgca gaaccctat ttgtttattt ttctaaatac 60
attcaaataat gtatccgctc atgagacaat aaccctgata aatgcttcaa taatattgaa 120
aaaggaagag tatgagtatt caacattcc gtgtcgccct tattccctt tttgcggcat 180
tttgccttcc tgaaaaatgc caccagaaa cgctggtaaa agtaaaagat gctgaagatc 240
agttgggtgc acgagtgggt tacatcgaac tggatctcaa cagcggtaag atccttgaga 300
gttttcgccc cgaagaacgt tttccaaatga tgagcaactt taaagttctg ctatgtggcg 360
cggtattatc ccgtattgac gccgggcaag agcaactcgg tcgcccata cactattctc 420
agaatgactt gggtgagtac tcaccagtca cagaaaagca tcttacggat ggcatgacag 480
taagagaatt atgcagtgc tccataacca tgagtgataa cactgcggcc aacttacttc 540
tgacaacat cggaggaccg aaggagctaa ccgcgtttt gcacaacatg ggggatcatg 600
taactcgccct tgatcggtgg gaaccggagc tgaatgaagc cataccaaac gacgagcgtg 660
acaccacat gcctgttagca atggcaacaa cggtcgcaaa actattaact ggcgaactac 720
ttactcttagc ttcccgccaa caattaatag actggatgga ggcggataaa gttgcaggac 780
cacttctgcg ctcggccctt ccggctggct gggttattgc tgataaatct ggagccggtg 840
agcgtgggtc tcgcggatc attgcagcac tggggccaga tggtaagccc tcccgtatcg 900
tagttatcta cacgacgggg agtcaggcaa ctatggatga acgaaataga cagatcgctg 960
agataggtgc ctcactgatt aagcattggt aactgtcaga ccaagttac tcataatatac 1020
tttagattga tttaaaactt cattttaat ttaaaaggat cttagtgaag atccttttg 1080
ataatctcat gaccaaaatc ccttaacgtg agtttcgtt ccactgagcg tcagaccccg 1140

Naldini.ST25

tagaaaagat caaaggatct tcttgagatc cttttttct gcgcgtaatc tgctgcttgc	1200
aaacaaaaaa accaccgcta ccagcggtgg tttgttgcc ggatcaagag ctaccaactc	1260
ttttccgaa ggtaactggc ttcagcagag cgccgatacc aaatactgtc cttctagtgt	1320
agccgtagtt aggccaccac ttcaagaact ctgttagcacc gcctacatac ctcgctctgc	1380
taatccctttt accagtggct gctgccagtg gcgataagtc gtgtcttacc gggttggact	1440
caagacgata gttaccggat aaggcgcagc ggtcgggctg aacgggggggt tcgtgcacac	1500
agcccagctt ggagcgaacg acctacacccg aactgagata cctacacggt gagctatgag	1560
aaagcgccac gcttcccgaa gggagaaagg cggacaggta tccggtaagc ggcagggtcg	1620
gaacaggaga ggcgcacgagg gagcttccag ggggaaacgc ctggtatctt tatagtcctg	1680
tcgggtttcg ccacctctga cttgagcgtc gatTTTGTG atgctcgtca ggggggcgga	1740
gcctatggaa aaacgcccagc aacgcggcct tttacggtt cctggcctt tgctggcctt	1800
ttgctcacat gtttttccct gcgttatccc ctgattctgt ggataaccgt attaccgcct	1860
ttgagtgagc tgataccgct cgccgcagcc gaacgaccga ggcgcagcag tcagtgagcg	1920
aggaagcggagc agagcgcggca atacgcaaacc cgcctctccc cgcgcgttgg ccgattcatt	1980
aatgcagctg gcacgacagg ttcccggact ggaaagcggg cagtgagcgc aacgcaatta	2040
atgtgagtt gctactcat taggcacccccc aggcttaca ctttatgctt ccggctcgta	2100
tgttgtgtgg aattgtgagc ggataacaat ttcacacagg aaacagctat gaccatgatt	2160
acgccaagcg cgcaattaac cctcactaaa gggacaaaaa gctggagctg caagcttggc	2220
cattgcatac gttgtatcca tatcataata tgtacattta tattggctca tgtccaacat	2280
taccgccccatg ttgacattga ttattgacta gttattaata gtaatcaatt acggggtcatt	2340
tagttcatag cccatatatg gagttccgcg ttacataact tacggtaat ggccgcctg	2400
gctgaccgccc caacgacccc cgcccatatga cgtcaataat gacgtatgtt cccatagtaa	2460
cgccaaatagg gactttccat tgacgtcaat gggtgagta tttacggtaa actgcccact	2520
tggcagtaca tcaagtgtat catatgccaa gtacgcccc tattgacgtc aatgacggta	2580
aatggccccgc ctggcattat gcccagtaca tgaccttatg ggactttcct acttggcagt	2640
acatctacgt attagtcatc gctattacca tggtgatgcg gttttggcag tacatcaatg	2700
ggcgtggata gcgggttgac tcacggggat ttccaagtct ccacccatt gacgtcaatg	2760
ggagtttggtt ttggcaccaa aatcaacggg actttccaaa atgtcgtaac aactccgccc	2820
cattgacgca aatggggcggt aggcgtgtac ggtggggaggt ctatataagc agagctcggt	2880
tagtgaaccg gggtctctct ggttagacca gatctgagcc tgggagctct ctggctaact	2940
agggaaaccca ctgcttaagc ctcaataaaag cttgccttga gtgcttcaag tagtgtgtgc	3000
ccgtctgttg tgtgactctg gtaactagag atccctcaga cccttttagt cagtgtggaa	3060

Naldini.ST25

aatctctagc agtggcgccc gaacagggac ctgaaagcga aaggaaacc agagctct	3120
cgacgcagga ctcggcttgc tgaagcgcgc acggcaagag gcgagggcg gcgactgg	3180
agtacgc当地 aaatttgac tagcggaggc tagaaggaga gagatgggtg cgagagcgtc	3240
agtattaagc ggggagaat tagatcgcga tggaaaaaa ttcggttaag gccaggggga	3300
aagaaaaat ataaattaaa acatatagtt tggcaagca gggagctaga acgattcgc	3360
gttaatcctg gcctgttaga aacatcagaa ggctgttagac aaatactggg acagctaca	3420
ccatcccttc agacaggatc agaagaactt agatcattat ataatacgt agcaaccctc	3480
tattgtgtgc atcaaaggat agagataaaa gacaccaagg aagctttaga caagatagag	3540
gaagagcaaa acaaaagtaa gaccaccgca cagcaagcg ccgctgatct tcagacctgg	3600
aggaggagat atgagggaca attggagaag tgaatttatataaataaag tagtaaaaat	3660
tgaaccatta ggagtagcac ccaccaaggc aaagagaaga gtggcaga gagaaaaag	3720
agcagtgggaa ataggagctt tgcccttgg gttctggaa gcagcaggaa gcactatggg	3780
cgcagccctca atgacgctga cggtaggc cagacaatta ttgtctggta tagtgcagca	3840
gcagaacaat ttgtctgggg ctattgaggc gcaacagcat ctgttgcac tcacagtctg	3900
gggcattcaag cagctccagg caagaatcct ggctgtggaa agatacctaa aggtcaaca	3960
gctcctgggg atttggggtt gctctggaaa actcattgc accactgctg tgccctggaa	4020
tgctagttgg agtaataaatt ctctggaca gatttggaaat cacacgacct ggatggagtg	4080
ggacagagaa attaacaatt acacaagctt aatacactcc ttaattgaag aatcgcaaaa	4140
ccagcaagaa aagaatgaac aagaattattt ggaatttagat aaatggcata gtttgggaa	4200
ttggtttaac ataacaattt ggctgtggta tataaaattt ttcataatga tagtaggagg	4260
cttggtaggt ttaagaatag ttttgcgtt actttctata gtgaatagag ttaggcagg	4320
atattcacca ttatcgtttcc agaccaccc cccaccccg agggaccccg acaggcccg	4380
aggaatagaa gaagaagggtt gagagagaga cagagacaga tccattcgat tagtgaacgg	4440
atctcgacgg tatcggttaa cttttaaaag aaaagggggg attgggggtt acagtgcagg	4500
ggaaagaata gtagacataa tagcaacaga catacaaact aaagaattac aaaaacaaat	4560
tacaaaaattt caaaattttt tcgatcacga gactgcctc gaggagatct gatcataatc	4620
agccatacca cattttaga gttttactt gttttaaaaa acctccca cctccccctg	4680
aacctgaaac ataaaatgaa tgcaattgtt gttgttaact ttttattgc agttataat	4740
ggttacaaat aaggcaatag catcacaaat ttcacaaata aggcatttt ttcactgc	4800
tcttagtttg gtttgc当地 actcatcaat gtatcttac atgtctggat ctcaaatccc	4860
tcggaagctg cgccgtctt aggttggagt gatacatttt tatcactttt acccgtctt	4920

Naldini ST25

ggattaggca	gtagctctga	cggccctcct	gtcttaggtt	agtaaaaaat	gtcactctct	4980
tacccgtcat	tggctgtcca	gcttagctcg	caggggaggt	ggtctggatc	caccatgtct	5040
agagaatagg	aacttcggaa	taggaacttc	gcggccgctt	tacttgtaca	gctcgtccat	5100
gccgagagtg	atcccggcgg	cggtcacgaa	ctccagcagg	accatgtat	cgcgcttctc	5160
gttggggct	ttgctcaggg	cggactgggt	gctcaggtag	tggttgtcgg	gcagcagcac	5220
ggggccgtcg	ccgatggggg	tgttctgctg	gtagtggctg	gcgagctgca	cgctgcccgc	5280
ctcgatgtt	tggcggatct	tgaagttcac	cttgcgtccg	ttcttctgct	tgtcggccat	5340
gatatacgt	ttgtggctgt	tgttagttgt	ctccagcttg	tgccccagga	tgttgcgcgc	5400
ctccttgaag	tcgatgcct	tcagctcgat	gcgggttcacc	agggtgtcgc	cctcgaactt	5460
caccccgccg	cgggtcttgt	agttgcgcgc	gtccttgaag	aagatggtgc	gctcctggac	5520
gtagccttcg	ggcatggcgg	acttgaagaa	gtcgtgctgc	ttcatgtgg	cgggttagcg	5580
gctgaagcac	tgcacgcccgt	aggtcagggt	ggtcacgagg	gtggggccagg	gcacggcag	5640
cttgcgggt	gtgcagatga	acttcagggt	cagcttgcgc	taggtggcat	cgcctcgcc	5700
ctcgccggac	acgctgaact	tgtggccgtt	tacgtcgccg	tccagctcgat	ccaggatggg	5760
caccaccccg	gtgaacagct	cctcgccctt	gctcaccatg	gttgcgacc	cgacctgagg	5820
gtgaccggga	tctgcggggg	gaccctctga	aaagtgaagg	ataagtgcg	agcggagacg	5880
ggatggcgaa	cagacacaaa	cacacgagag	aagaatgtta	ggactgttgc	aagtttactc	5940
aaaaaatcag	cacttttta	tattatggtt	tacataagca	tttacataag	acitggatag	6000
attccaaaag	aacataggca	agcttgat	cgaattccca	cggggttggg	gttgcgcctt	6060
ttccaaggca	gccctgggtt	tgcgcaggga	cgcggctgct	ctgggcgtgg	ttccgggaaa	6120
cgcagcggcg	ccgaccctgg	gtctcgacata	ttcttcacgt	ccggtcgac	cgtcaccgg	6180
atttcgccg	ctacccttgt	gggccccccg	gacgacgcttc	ctgctccgccc	cctaagtccg	6240
gaaggttcct	tgcgggttcgc	ggcgtgcccgg	acgtgacaaa	cgaaagccgc	acgtctcact	6300
agtaccctcg	cagacggaca	gacgcccaggga	gcaatggcag	cgcgcccggacc	gcgtatggcgt	6360
gtggccaata	gcggctgctc	agcggggcgc	gccgagagca	gcggccggga	aggggcgggt	6420
cgggaggcgg	ggtgtggggc	ggttagtgtgg	gccctgttcc	tgcccgcgcg	gtgttccgc	6480
ttctgcaagc	ctccggagcg	cacgtcggca	gtcggctccc	tcgttgaccg	aatcaccgac	6540
ctctctcccc	agggggatcc	cccgggctgc	aggaattcgg	gccgcggcca	gctccggcg	6600
gcaggggggg	cgttggagcg	cagcgcagcg	cagccccatc	agtccgcaaa	gcggaccgag	6660
ctggaaatcg	agcgctgccc	cgggaggcgg	gcgtatgggg	caggtgccac	cggccgcgccc	6720
atggacgggc	cgcgcctgct	gctgttgctg	tttctggggg	tgtcccttgg	aggtgccaag	6780
gaggcatgcc	ccacaggcct	gtacacacac	agcgggtgagt	gctgcaaagc	ctgcaacctg	6840

Naldini.ST25

ggcgagggtg	tggcccagcc	ttgtggagcc	aaccagaccg	tgtgtgagcc	ctgcctggac	6900
agcgtgacgt	tctccgacgt	ggtgagcgcg	accgagccgt	gcaagccgtg	caccgagtgc	6960
gtggggctcc	agagcatgtc	ggcgcgtgc	gtggaggccg	acgacgccgt	gtgccgctgc	7020
gcctacggct	actaccagga	tgagacgact	gggcgctgcp	aggcgtgccc	cgtgtgcgag	7080
gcgggctcg	gcctcggtt	ctcctgccag	gacaaggaga	acaccgtgtg	cgaggagtgc	7140
cccgacggca	cgtattccga	cgaggccaac	cacgtggacc	cgtccctgcc	ctgcaccgtg	7200
tgcgaggaca	ccgagcgcca	gctccgcgag	tgcacacgct	gggcccacgc	cgagtgcgag	7260
gagatccctg	gccgttggat	tacacggtcc	acaccccccag	agggctcgga	cagcacagcc	7320
cccagcaccc	aggagcctga	ggcacctcca	gaacaagacc	tcatagccag	cacggtggca	7380
ggtgtggta	ccacagtgtat	gggcagctcc	cagcccgtgg	tgacccgagg	caccaccgac	7440
aacctcatcc	ctgtcttattt	ctccatcctg	gctgctgtgg	ttgtgggcctt	tgtggcctac	7500
atagccttca	agaggtggaa	cagggggatc	ctctagagtc	gagtcttagag	tcgacaatca	7560
acctctggat	tacaaaattt	gtgaaagatt	gactggatt	cttaactatg	ttgctccctt	7620
tacgctatgt	ggatacgcgt	ctttaatgcc	tttgtatcat	gctattgctt	cccgatggc	7680
tttcattttc	tcctccttgt	ataaatcctg	gttgctgtct	ctttatgagg	agttgtggcc	7740
cgttgcagg	caacgtggcg	tggtgtgcac	tgtgtttgct	gacgcaaccc	ccactgggtt	7800
gggcattgcc	accacctgtc	agctcccttc	cgggactttc	gctttcccc	tccctattgc	7860
cacggcggaa	ctcatcgccg	cctgccttgc	ccgctgctgg	acaggggctc	ggctgttggg	7920
cactgacaat	tccgtggtgt	tgtcgggaa	gctgacgtcc	tttccatggc	tgctcgccctg	7980
tgttgcacc	tggattctgc	gcgggacgtc	cttctgctac	gtcccttcgg	ccctcaatcc	8040
agcggacctt	ccttcccgcg	gcctgctgcc	ggctctgcgg	cctcttccgc	gtcttcgcct	8100
tcgcctcag	acgagtcgga	tctcccttg	ggccgcctcc	ccgcctggaa	ttcgagctcg	8160
gtaccttaa	gaccaatgac	ttacaaggca	gctgttagatc	ttagccactt	tttaaaagaa	8220
aaggggggac	tggaagggt	aattcactcc	caacgaagac	aagatctgct	ttttgcttgc	8280
actgggtctc	tctggtaga	ccagatctga	gcctgggagc	tctctggcta	actaggaaac	8340
ccactgctta	agcctaata	aagcttgcct	tgagtgcctc	aagttagtgc	tgcccgtctg	8400
ttgtgtgact	ctggtaacta	gagatccctc	agacccttt	agtcagtgtg	gaaaatctct	8460
agcagtagta	gttcatgtca	tcttattatt	cagtattat	aacttgcaaa	gaaatgaata	8520
tcagagagtg	agaggaactt	gtttattgca	gcttataatg	gttacaaata	aagcaatagc	8580
atcacaaatt	tcacaaataaa	agcatttttt	tcactgcatt	ctagttgtgg	tttgtccaaa	8640
ctcatcaatg	tatcttatca	tgtctggctc	tagctatccc	gcccttaact	ccgcccagtt	8700

Naldini ST25

ccgcccattc	tccgccccat	ggctgactaa	tttttttat	ttatgcagag	gccgaggccg	8760
cctcggcctc	ttagctattc	cagaagttagt	gaggaggctt	ttttggaggc	ctaggcttt	8820
gcgtcgagac	gtacccaatt	cgcctatacg	tgagtcgtat	tacgcgcgct	caactggccgt	8880
cgtttacaa	cgtcgtgact	ggaaaaaccc	tggcgttacc	caacttaatc	gccttgcagc	8940
acatccccct	ttcgccagct	ggcgtaatag	cgaagaggcc	cgcaccgatc	gcccttccca	9000
acagttgcgc	agcctgaatg	gcgaatggcg	cgacgcgccc	tgtagcggcg	cattaagcgc	9060
ggcgggtgtg	gtggttacgc	gcagcgtgac	cgctacactt	gccagcgccc	tagcgcggc	9120
tccttcgct	ttcttcctt	ccttctcgc	cacgttcgcc	ggctttcccc	gtcaagctct	9180
aaatcggggg	ctccctttag	ggttccgatt	tagtgctta	cggcacctcg	accccaaaaa	9240
acttgattag	ggtgatggtt	cacgtagtgg	gccatgcgcc	tgatagacgg	tttttcgcgg	9300
tttgacgttg	gagtccacgt	tcttaatag	tggactcttg	ttccaaactg	gaacaacact	9360
caaccctatc	tcggtctatt	ctttgattt	ataaggatt	ttgcccattt	cggcctattg	9420
gttaaaaaat	gagctgattt	aacaaaaatt	taacgcgaat	ttaacaaaa	tattaacgtt	9480
tacaatttcc						9490

<210> 8

<211> 10086

<212> DNA

<213> Artificial Sequence

<220>

<223> plasmid

<220>

<221> misc_feature

<222> (1)..(10086)

<223>

<220>

<221> misc_feature

<222> (1)..(10086)

<223> plasmid containing the lentiviral vector construct CCL-MA4-GFP/de
taLNGFR

Naldini.ST25

<400> 8	
caggtggcac ttttcgggga aatgtgcgcg gaaccctat ttgtttat	60
ttctaaatac attcaaata	
atgtatccgctc atgagacaat aaccctgata aatgcttcaa	120
taatattgaa aaaggaagag tatgagtatt caacatttcc gtgtcgccct	180
tattccctt tttgcggcat tttgccttcc tgttttgct cacccagaaa	240
cgctggtgaa agtaaaagat gctgaagatc agttgggtgc acgagtgggt	300
tacatcgAAC tggatctcaa cagcggtaa atccttgaga gttttcgccc	360
cgaagaacgt tttccaatga tgagcacttt taaagttctg ctatgtggcg	420
cggtattatc ccgtattgac gccgggcaag agcaactcg	480
tcgcccata cactattctc agaatgactt ggttgagtac tcaccagtca	540
cagaaaagca tcttacggat ggcatgacag taagagaatt atgcagtgct	600
gccataacca tgagtgataa cactgcggcc aacttacttc tgacaacgt	660
cggaggaccg aaggagctaa ccgcttttgcacaacatg ggggatcatg	720
taactcgccct tgatcggtgg gaaccggagc tgaatgaagc cataccaaac	780
gacgagcgtg acaccacgt gcctgttagca atggcaacaa cgttgcgcaa	840
actattaact ggcgaactac ttactctagc ttcccgcaaa caattaatag	900
actggatgga ggcggataaa gttgcaggac cacttctcg ctcggccctt	960
ccggctggct ggtttattgc tgataaatct ggagccggtg agcgtgggtc	1020
tcgcggtac tcgcggtac tggttgcggc tggtaagccc tcccgtatcg	1080
tagttatcta cacgacgggg agtcaggcaa ctatggatga acgaaataga	1140
cagatcgctg agataggtgc ctcactgatt aagcatttgt aactgtcaga	1200
ccaagtttac tcataatatac tttagattga tttaaaactt cattttaaat	1260
ttaaaaggat ctaggtgaag atccttttg ataatctcat gacaaaatc	1320
ccttaacgtg agtttcgtt ccactgagcg tcagaccccg tagaaaagat	1380
caaaggatct tcttgagatc cttttttct gcgcgtatc tgctgcttgc	1440
aaacaaaaaa accaccgcta ccagcggtgg tttgtttgcc ggatcaagag	1500
ctaccaactc ttttccgaa ggttaactggc ttcagcagag cgcatgatacc	1560
aaataactgtc cttctgtt accagtggct gctgccagtgcgataagtc	1620
gtgtcttacc gggttggact caagacgata gttaccggat aaggcgcagc	1680
ggtcgggctg aacgggggggt tcgtgcacac agcccagctt ggagcgaacg	1740
acctacaccg aactgagata cctacagcgt gagctatgaaagcgcac	1800
gcttccgaa gggagaaagg cggacaggta tccggtaagc ggcagggtcg	1860
gaacaggaga ggcgcacgagg gagttccag gggaaacgc ctggtatctt	
tatagtcctg tcgggtttcg ccacctctga cttgagcgtc gatTTTGTG	
atgctcgta gggggggcgga gcctatggaa aaacgcgcagc aacgcggcct	
ttttacggtt cctggcctt tgctggcctt ttgctcacat gttctttcct	
gcgttatccc ctgattctgt ggataaccgt attaccgcct	

Naldini.ST25

tttagtgagc tgataccgct cgccgcagcc gaacgaccga gcgcagcgag tcagttagcg 1920
aggaagcgga agagcgccca atacgcaaac cgcctctccc cgccgttgg ccgattcatt 1980
aatgcagctg gcacgacagg tttccgact ggaaagcggg cagtgagcgc aacgcaatta 2040
atgtgagttt gctcaactcat taggcacccc aggcttaca ctttatgctt ccggctcgta 2100
tgttgttgg aattgtgagc ggataacaat ttcacacagg aaacagctat gaccatgatt 2160
acgccaagcg cgcaattaac cctcactaaa gggaaacaaaaa gctggagctg caagcttggc 2220
cattgcatac gtgttatcca tatcataata tgtacatttatttatttgcata tgcataat 2280
taccgccccatg ttgacattga ttattgacta gttattaata gtaatcaatt acggggtcatt 2340
tagttcatag cccatataatg gagttccgcg ttacataact tacggtaaat ggccgcctg 2400
gctgaccgccc caacgacccc cgccatttga cgtcaataat gacgtatgtt cccatagtaa 2460
cgccaaatagg gactttccat tgacgtcaat ggggtggagta ttacggtaaa actgcccact 2520
tggcagtaca tcaagtgtat catatgccaa gtacgcccc tattgacgtc aatgacggtt 2580
aatggccgcg ctggcattat gcccagtaca tgaccttatg ggactttcct acttggcagt 2640
acatctacgt attagtcattc gctattacca tggtgatgcg gttttggcag tacatcaatg 2700
ggcgtggata gcgggttgac tcacggggat ttccaaagtct ccacccatt gacgtcaatg 2760
ggagtttggtt ttggcaccaa aatcaacggg actttccaaa atgtcgtaac aactccgc 2820
cattgacgca aatgggcggt aggcgtgtac ggtgggaggt ctatataagc agagctcgat 2880
tagtgaaccg gggctctct ggttagacca gatctgagcc tggagctct ctggctaact 2940
agggaaaccca ctgcttaagc ctcaataaaag cttgccttga gtgcttcaag tagtgtgtgc 3000
ccgtctgttgc tggactctg gtaacttagag atccctcaga cccttttagt cagtgtggaa 3060
aatctcttagc agtggcgccc gaacagggac ctgaaagcga aaggaaacc agagctct 3120
cgacgcagga ctggccttgc tgaagcgcgc acggcaagag gcgaggggcg gcgactgg 3180
agtacgccaa aaattttgac tagcggaggc tagaaggaga gagatgggtg cgagagcg 3240
agtattaaac gggggagaat tagatcgca tggaaaaaaa ttccgtttaag gccaggggaa 3300
aagaaaaat ataaattaaa acatatacgat tggcaagca gggagctaga acgattcgca 3360
gttaatccctg gcctgtttaga aacatcgaa ggctgttagac aaatactggg acagctacaa 3420
ccatcccttc agacaggatc agaagaactt agatcattat ataatacagt agcaaccctc 3480
tattgtgtgc atcaaaggat agagataaaa gacaccaagg aagctttaga caagatagag 3540
gaagagcaaa acaaaagtaa gaccacccgca cagcaagcgg ccgctgtatct tcagacctgg 3600
aggaggagat atgagggaca attggagaag tgaatttatataatataaag tagtaaaaat 3660
tgaaccattttaa ggagtagcacttccacccacccaaagagaaga gttggcaga gggaaaaat 3720

Naldini.ST25

Naldini.ST25

gcttgcgtta	ggtggcatcg	ccctcgccct	cggccggacac	gctgaacttg	tggccgttta	5700
cgtcgccgtc	cagctcgacc	aggatgggca	ccaccccggt	gaacagctcc	tcgcccgtgc	5760
tcaccatggt	gaattccgcg	gaggctggat	cggtcccggt	gtcttctatg	gaggtcaaaa	5820
cagcgtggat	ggcgtctcca	ggcgatctga	cggttcacta	aacgagctct	gcttatata	5880
gcctccacc	gtacacgcct	accctcgaga	agcttgatta	accctgtcg	gctccagatc	5940
tggcctccgc	gccggggtttt	ggcgccctccc	gcgggcgccc	ccctccctac	ggcgagcgct	6000
gccacgtcag	acgaagggcg	cagcgagcgt	cctgatccctt	ccgcccggac	gctcaggaca	6060
gcggcccgct	gctcataaga	ctcgccctta	gaaccccagt	atcagcagaa	ggacatttta	6120
ggacgggact	tgggtgactc	tagggcactg	gttttcttc	cagagagcgg	aacaggcgag	6180
gaaaagttagt	cccttctcg	cgattctcg	gagggatctc	cgtggggcgg	tgaacgcccga	6240
tgattatata	aggacgcgc	gggtgtggca	cagctagttc	cgtcgcagcc	gggatttggg	6300
tcgcggttct	tgttgtgga	tcgctgtgat	cgtcaattgg	tgagttgcgg	gctgctggc	6360
tggccggggc	tttcgtggcc	gccgggccc	tcgggtggac	ggaagcgtgt	ggagagaccg	6420
ccaaggcgt	tagtctgggt	ccgcgagcaa	gttgcctcg	aactgggggt	tggggggagc	6480
gcacaaaatg	gcggctgttc	ccgagtctt	aatggaaagac	gcttgttaagg	cgggctgtga	6540
ggtcgttgaa	acaagggtgg	gggcatggtg	ggcggcaaga	acccaaggtc	ttgaggcctt	6600
cgctaatgcg	ggaaagctct	tattcgggt	agatgggctg	gggcaccatc	tggggaccct	6660
gacgtgaagt	ttgtcactga	ctggagaact	cgggtttgtc	gtctgggtgc	ggggcggca	6720
gttatgcgt	gccgttggc	agtgcaccc	taccttggg	agcgcgcg	tcgtcgtgc	6780
gtgacgtcac	ccgttctgtt	ggcttataat	gcaggggtgg	gccacctg	ggtaggtgt	6840
cggtaggctt	ttctccgtcg	caggacgcag	gttccggcc	taggtaggc	tctcctgaat	6900
cgacaggcgc	cggaccc	gtgagggag	ggataagtga	ggcgtcagtt	tcttggtc	6960
gttttatgt	cctatcttct	taagtagctg	aagctccgt	tttgaactat	gctcgtggg	7020
ttggcgagt	tgttttgta	agtttttag	gcaccttt	aatgtata	atttgggtca	7080
atatgtatt	ttcagtgtt	gactagtaaa	ttgtccgcta	aattctggcc	gtttttggct	7140
tttttgttag	acgaagctt	ggctgcagga	attcggccg	cggccagtc	cggcggcag	7200
ggggggcgct	ggagcgcagc	gcagcgcagc	ccatcagtc	cgcaaagcgg	accgagctgg	7260
aagtcgagcg	ctgcccggg	aggcgggcga	tggggcagg	tgccaccggc	cgcgcacatgg	7320
acggccgcg	cctgctgct	ttgctgcttc	tgggggtgtc	ccttggaggt	gccaaggagg	7380
catccccac	aggcctgtac	acacacagcg	gtgagtgc	caaagcctgc	aacctggcg	7440
agggtgtggc	ccagcctt	ggagccaacc	agaccgtgt	tgagccctgc	ctggacagcg	7500

Naldini ST25

tgacgttctc	cgacgtggtg	agcgcgaccg	agccgtgcaa	gccgtgcacc	gagtgcgtgg	7560
ggctccagag	catgtcggcg	ccgtgcgtgg	aggccgacga	cgccgtgtgc	cgctgcgcct	7620
acggctacta	ccaggatgag	acgactgggc	gctgcgaggc	gtgccgcgtg	tgcgaggcgg	7680
gctcgggcct	cgtgttctcc	tgccaggaca	agcagaacac	cgtgtgcgag	gagtgc(cc)cg	7740
acggcacgta	ttccgacgag	gccaaccacg	tggacccgtg	cctgcccgtc	accgtgtgcg	7800
aggacaccga	gcccagcgtc	cgcgagtgc	cacgctgggc	cgacgcccag	tgcgaggaga	7860
tccctggccg	ttggattaca	cggtccacac	ccccagaggg	ctcggacagc	acagccccca	7920
gcacccagga	gcctgaggca	cctccagaac	aagacctcat	agccagcag	gtggcaggtg	7980
tggtgaccac	agtgtatgggc	agctcccagc	ccgtggtgac	ccgaggcacc	accgacaacc	8040
tcatccctgt	ctattgctcc	atcctggctg	ctgtggttgt	gggccttgc	gcctacatag	8100
ccttcaagag	gtggaacagg	gggatccct	agagtcgagt	ctagagtcg	aatcaacct	8160
ctggattaca	aaatttgc	aagattgact	ggtattctta	actatgtgc	tcctttacg	8220
ctatgtggat	acgctgctt	aatgcctt	tatcatgcta	ttgcttccg	tatggctt	8280
atttctcct	ccttgtataa	atcctggtt	ctgtctctt	atgaggagtt	gtggcccgtt	8340
gtcaggcaac	gtggcgtgg	gtgcactgt	tttgctgacg	caacccccac	tggttggggc	8400
attgccacca	cctgtcagct	ccttccggg	acttcgc	tccccctccc	tattgccacg	8460
gcggaactca	tcgcccctg	ccttgcgc	tgctggacag	gggctcggct	gttgggcact	8520
gacaattccg	tggtgttgc	ggggaaagct	acgtccttc	catggctgct	cgcctgtgtt	8580
gccacctgga	ttctgcgc	gacgtcctc	tgctacgtcc	cttcggccct	caatccagcg	8640
gacccctt	cccgccgc	gctgccgg	ctgcccctc	ttccgcgtct	tcgccttcgc	8700
cctcagacga	gtcggatctc	ccttggcc	gcctccccgc	ctggaaattcg	agctcggtac	8760
cttaagacc	aatgacttac	aaggcagct	tagatctt	ccacttttta	aaagaaaaagg	8820
ggggactgga	agggctaatt	cactccaaac	gaagacaaga	tctgttttt	gcttgtactg	8880
ggtctctctg	gttagaccag	atctgac	gggagctctc	tggctaacta	gggaacccac	8940
tgcttaagcc	tcaataaagc	ttgcctt	tgcttcaagt	agtgtgtgc	cgtctgtgt	9000
gtgactctgg	taactagaga	tccctcagac	ccttttagtc	agtgtggaaa	atctctagca	9060
gtagtagttc	atgtcatctt	attattcagt	atttataact	tgcaaagaaa	tgaatatcg	9120
agagtgagag	gaacttgttt	attgcagctt	ataatggta	caaataaagc	aatagcatca	9180
caaatttcac	aaataaagca	ttttttcac	tgcattctag	ttgtggttt	tccaaactca	9240
tcaatgtatc	ttatcatgtc	tggctctagc	tatcccgc	ctaactccgc	ccagttccgc	9300
ccattctccg	ccccatggct	gactaatttt	ttttattat	gcagaggccg	aggccgcctc	9360
ggcctctgag	ctattccaga	agtagtgagg	aggcttttt	ggaggcctag	gctttgcgt	9420

Naldini.ST25

cgagacgtac ccaattcgcc	ctatagtgag tcgtattacg	cgcgctca	ggccgtcg	tt	9480		
ttacaacgtc	gtgactggga	aaaccctggc	gttacccaac	ttaatcgcc	tgcagcacat	9540	
ccccctttcg	ccagctggcg	taatagcgaa	gaggcccgc	ccgatcgccc	ttcccaacag	9600	
ttgcgcagcc	tgaatggcg	atggcgcgac	gcgcctgta	gcggcgcatt	aagcgcggcg	9660	
ggtgtgggtgg	ttacgcgcag	cgtgaccgct	acacttgcca	gcgccttagc	gcccgc	9720	
ttcgctttct	tcccttc	tctcgccacg	ttcgccgg	ttcccg	gtca agctctaaat	9780	
cgggggctcc	ctttagggtt	ccgatttagt	gctttacggc	acctcgaccc	caaaaaactt	9840	
gattagggtg	atggttcacg	tagtggcca	tcgcctgat	agacgg	tttt tcgc	9900	
acgttggagt	ccacgttctt	taatagtgg	ctcttgttcc	aaactgg	aaac aactcaac	9960	
cctatctcg	g tctattctt	tgatttataa	gggattttgc	cgatttcggc	ctattgg	ttta 10020	
aaaaatgagc	tgat	tttaaca	aaaat	tttaac	gcgaat	ttta acaaaatatt aacg	tttaca 10080
at	tttcc						10086